

NOISE CANCELLATION IN A SINGLE ENDED SAR CONVERTER

ABSTRACT OF THE DISCLOSURE

Noise cancellation in a single ended SAR converter. A single ended SAR converter front end is disclosed with common mode driver noise cancellation. The SAR converter front end includes a differential amplifier having positive and negative inputs and an output. A switched capacitor array is provided that is operable in a SAR data conversion operation to vary the voltage on one of the positive or negative inputs of the differential amplifier. A common mode driver drives a common mode node with a low impedance common mode voltage signal to a common mode node, and switching circuitry then switches the common mode voltage signal on the common mode node to the positive and negative inputs of the differential amplifier during a portion of a SAR data conversion cycle. A capacitor reference circuit is attached to the other of the positive or negative inputs of the differential amplifier during at least the portion of the SAR data conversion cycle, the capacitor reference circuit and the capacitor array during at least the portion of the SAR data conversion cycle having relative capacitance values that increase the common mode rejection of any noise introduced to the common mode node at the input of the differential amplifier.